

MARINE REVIEW.

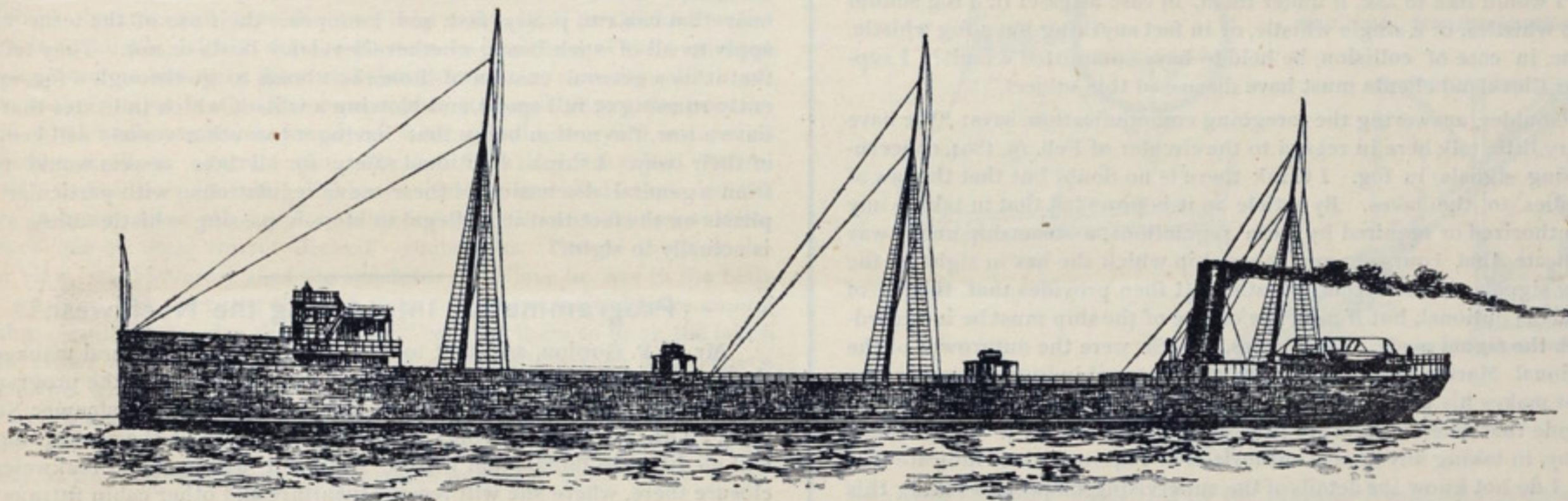
VOL. IX.

CLEVELAND, O., AND CHICAGO, ILL., APRIL 12, 1894.

No. 15.

Steel Steamer Harvey H. Brown.

It was expected that a trial trip of the steel steamer Harvey H. Brown, which was launched from the Wyandotte ship yard of the Detroit Dry Dock Company a few weeks ago, would take place on Wednesday of this week but the trip has been postponed for a few days. This vessel, to which extended reference was made in the REVIEW of March 15, just following the launch, is, as regards nearly all details of hull and machinery, a duplicate of the big steamer Selwyn Eddy, built by the same company for Eddy Bros. of Bay City, but she will be fitted with Howden's forced draft and has a sheathing of wood on her bottom, which is intended to lessen the danger of costly repairs resulting from river strandings. On account of this wood sheathing, the premium on a season's insurance will, according to the tariff recently adopted by lake underwriters, be reduced about \$500, and there is less probability also of the boat losing valuable time in port, on account of touching in the rivers at places where a boat without this protection would suffer serious loss. Immediately upon the opening of navigation on Lake Superior, this steamer, which will be managed with other boats controlled by Capt. E. M. Peck of Detroit and Harvey H. Brown of Cleveland, will enter upon a contract to carry ore from Ashland for the greater part of the season.



NEW STEEL STEAMER HARVEY H. BROWN.

A Most Discouraging Freight Outlook.

During the worst of the dull periods in 1893 there were more cargoes to be had than are now offering in either coal, grain or ore for the Chicago fleet that has opened navigation to and from Lake Michigan.

A strike of soft coal miners in Ohio and Pennsylvania is ordered, and most vessel owners, as well as the majority of the coal shippers themselves, feel that enforced idleness until well into June would result to the advantage of all interests.

A few cargoes of soft coal for Lake Michigan have been placed at 35 cents, but there is absolutely nothing offering for Lake Superior, and the vessel owners who have ore from the head of the lakes to carry on contract at 80 cents and from Marquette at 66 cents have certainly met with a strange state of affairs. Coal shippers could undoubtedly secure some tonnage to take coal on contract for the head of Lake Superior at 30 cents, but even at this figure they are unable to do business, on account of the general unsettled condition of their affairs. Of course, there are only a few owners who would accept such a rate on coal, and their offers to do so are of no avail, as the amount of coal sold is very limited, and most of the coal operators feel that surplus stocks now at the head of the lakes must be worked off before the sales market shows improvement.

Vessel brokers have offers of 80 cents for the full season on ore from Duluth and Ashland, but they are not being accepted, although more tonnage could be had on the basis governing the contracts that have been made at 80 cents. There is no ore offering from Escanaba, either on contract or for single trips, and in view of the outlook in coal it is probable that most boats having contracts to carry ore from the head of the lakes will be forced to go light for it after May 1. In doing this, only the best class of boats can clear running expenses, and the only advantage for them in sight is the general cutting down of these expenses. Within the week the dock companies at Lake Erie ports have reduced the charge for unloading $2\frac{1}{2}$ cents a ton, and a rate of $2\frac{1}{2}$ cents a ton for trimming has

been made at Marquette and 2 cents at Duluth, with prospects of corresponding reductions at Ashland, Two Harbors and Escanaba.

New Keeper of the Cleveland Life Saving Station.

Charles E. Motley, who has been appointed to succeed Capt. Lawrence Distel as keeper of the Cleveland life saving station, is fully capable of filling the position. Capt. Distel's resignation was sent to Washington on the advice of his physician, as he has not recovered from the effects of illness contracted last season when he narrowly escaped death in the service. The new keeper has been engaged as a fisherman on the lakes from boyhood. He was seven years in command of a fishing tug and sailed out of Cleveland for five or six years. He served at Middle Island station in 1892 and at Thunder bay island station in 1887, where he had considerable experience at wrecks. He is well known to leading officers of the service, and is endorsed by Superintendents Chapman and Kiah, as well as the keepers of the stations where he was employed.

Thirteen New War Vessels.

Contracts for two of the seven battleships, to be built according to the new British naval programme within the fiscal year, have been let to pri-

vate firms—James & George Thomson of Clydebank and Laird Bros. of Birkenhead. The other five will be built in the government dock yards. These vessels are to be 390 feet long, 75 feet beam, and will have a load draught of 27 feet 6 inches with 900 tons of coal in the bunkers, when the displacement is 14,900 tons. The weight of the hull is 10,180 tons. The machinery is designed to develop, under natural draught, 10,000 indicated horse-power, giving a speed of 16.5 knots, and under forced draught, 12,000 indicated horse-power, giving a speed of 17.5 knots. There are yet to be given out to contract six second class cruisers, of 350 feet length and to have engines capable of developing 9,600 horse power. This is certainly building war ships with a vengeance.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on April 7, 1894:

| | Wheat, bu. | Corn, bu. |
|----------------|------------|-----------|
| Chicago..... | 20,104,000 | 5,591,000 |
| Duluth..... | 11,414,000 | 261,000 |
| Milwaukee..... | 904,000 | 3,000 |
| Detroit..... | 2,051,000 | 37,000 |
| Toledo..... | 3,149,000 | 798,000 |
| Buffalo..... | 1,188,000 | 819,000 |
| Total..... | 38,810,000 | 7,519,000 |

At the points named there is a net increase for the week of 319,000 bushels of wheat and 23,000 bushels of corn.

The brick model battleship exhibited at the World's Columbian Exposition, and which is now about to be moved to a more convenient location in Chicago, weighs about 2,000 tons. The work of constructing a cofferdam around and forcing scows underneath it, while the piles upon which it is built are gradually cut away, is by no means an easy job.

Passing Signals in Fog.

At the last annual meeting of the board of supervising inspectors of steam vessels, the following resolutions were adopted and have since been printed for distribution from the offices of local inspectors:

Resolved, That pilots of steam vessels be instructed through the local inspectors, when licenses are being issued to such pilots, that the signals provided in the pilot rules for lakes, seaboard and western rivers, for steamers meeting, passing or overtaking, are never to be used, except when steamers are in sight of each other, and the course and position of each can be accurately determined, in the day time, by a sight of the vessel itself, or at night, by its signal lights. In fog, mists, or falling snow, when vessels can not see each other, fog signals only may lawfully be given, and pilots should, upon hearing the fog signal of another vessel ahead, or on either bow, run slow, with frequent stoppages, until the fog signals of the opposing vessel are heard abaft the beam.

Be it further resolved, That these resolutions be printed in a foot note on the pilot rules when new editions are printed, and also in circular form, to be presented by the local inspectors to each master and pilot, when issuing to him his license.

This resolution was printed in a circular from the board of supervising inspectors dated Feb. 19, 1894, and although little attention has been given to it in the newspapers, the subject is one of great importance. The manager of a large line of steam vessels, writing Attorney Harvey D. Goulder of Cleveland about the board's action in calling special attention to this feature of the steamboat laws, says: "I understand these are the regulations prescribed by the International Marine Conference, and under them, unless vessels can see each other or their lights, it is illegal to exchange passing signal whistles. I can not find that there has been any newspaper notoriety given to these new regulations since the circular from the board of was issued. I would like to ask, if under them, in case a vessel in a fog should blow two whistles, or a single whistle, or in fact anything but a fog whistle, would she, in case of collision, be held to have committed a fault? I suppose your Cleveland clients must have discussed this subject."

Mr. Goulder, answering the foregoing communication, says: "We have heard very little talk here in regard to the circular of Feb. 19, 1894, concerning passing signals in fog. I think there is no doubt but that the law of 1885 applies to the lakes. By article 19 it is provided that in taking any course authorized or required by these regulations, a steamship under way may indicate that course to any other ship which she has in sight by the following signals on her steam whistle. It then provides that the use of the signals is optional, but if used the course of the ship must be in accordance with the signal made. The rules, which were the outgrowth of the International Marine Conference, are to become binding whenever the president makes his proclamation. These rules, in the twenty-eighth article, provide that when vessels are in sight of one another, a steam vessel under way, in taking any course authorized or required, shall indicate that course. I do not know the details of the supervising inspectors taking this action, but I am making some inquiry for particulars regarding it. I have heretofore corresponded with General Dumont and others of the board, calling attention to certain features of their rules for the lakes which were in conflict with statutes, and took occasion to suggest that the law of 1885 applied, and that there was serious conflict between that law and the rules of the board. This was winter before last. They did nothing about it at that time, and I am inclined to think they did not give due consideration to the matter.

"Replying to your inquiry, whether a vessel using passing signals in a fog would be held in fault, I think it would be unwise to use them. The only decision I know of on the subject is by the circuit court of appeals for the first circuit, decided in Boston. The court says: 'The assumption of Capt. Crowell that he had a right, under the conditions in which he found himself, to use and act upon the signals specified in the nineteenth article of the sailing rules, was not warranted. By that article a steamship under way has permission—only permission—to employ the signals therein named for communication with 'a ship which he has in sight.' They are not signals allowed in a fog or other state of the atmosphere, when sight is cut off. Absolute knowledge of the relative positions of the vessel, such as sight only can convey, is a prerequisite to their use. This case well illustrates the great difference between the certain information of sight and conclusions resting on inferences from sound.'

"The court then quotes the following from the supreme court of the United States: 'There is no such certainty of the exact position of a horn blown in a fog as will justify a steamer in speculating upon the probability of avoiding it by a change of the helm, without taking the additional precaution of stopping until its location is definitely ascertained.'

"It seems to me that this decision answers the question, with this further consideration taken into account—that no fault is material unless it may be said to have, in some degree, directly contributed to the collision. The real gist of the fault to be ascribed to a vessel using passing signals in a fog would not consist so much in the blowing of the signals, as in seeking by the aid of passing signals and the use of the helm to navigate in a fog without the precaution of stopping and feeling her way by. It is held

that where a vessel which comes into collision was violating a statute, she must establish that her violation of the statute not only did not probably contribute, but could not have contributed to the collision. A steamer using the passing signal in a fog would, therefore, find herself in this position: She would be violating a statute which provides that she may use the passing signal and depend upon it only when the other vessel is in sight, and the assumption would be that instead of observing the rule, slowing right down and coming to a stand-still if necessary and feeling her way by the other ship, that she had gone on, not simply using but depending and relying upon the passing signal and the use of the helm. If she slowed down, and, if necessary, came to a stand-still and felt her way by, the use of the passing signals would be immaterial. In practice that would result substantially to this: That the passing signals were used and the vessel got by without collision; the blowing of the whistle would lead to no damage and would count for nothing; but if a vessel used the passing signal in a fog so thick that she could not see the other vessel and collision resulted, it would be very difficult for her to establish that her action—not necessarily of blowing the whistle, but in consequence of the blowing and depending upon the prescribed method of passing instead of adopting the prescribed method—did not contribute in some way to the collision. As the court once said in respect to stopping and backing, it is always safe to stop and back, at least so far as respects a charge of fault, and I would say the same thing in regard to omitting to blow passing signals to a vessel not in sight, so long as the law stands as it is."

In reply to this letter from Mr. Goulder, the vessel manager referred to says: "I have your interesting letter of April 3. In going over the subject with our captains, I find they make continual use of the expression: 'If those Cleveland boats would only navigate according to law, it would be safer for all of us.' In asking them what they meant by the term 'those Cleveland boats,' I discovered that they mean generally the later type of boat that can run pretty fast, and I suppose their use of the term would apply to all of such boats, whether Cleveland boats or not. They tell me that it is a general custom of those fast boats to go through a fog, apparently running at full speed, and blowing a whistle which indicates that they have a tow, the notion being that having a tow other vessels will keep out of their way. I think additional safety for all lake vessels would result from a general discussion of these new regulations, with particular emphasis on the fact that it is illegal to blow a passing whistle unless a boat is actually in sight."

Programme for Introducing the Northwest.

Mr. F. P. Gordon, assistant to Mr. John Gordon, general manager of the Northern Steamship Company, gives the following as the programme now outlined for the early excursion trips of the passenger steamer Northwest. The boat, after leaving Cleveland at the close of the present month, will go direct to Buffalo and will be stationed within the breakwater enclosure there, where she will receive furniture and other cabin fittings that await her arrival. About May 15, when entirely finished, she will go to the company's dock at the foot of Main street and for three hours each morning for three days she will be open to public inspection. During these three days excursions taking up the afternoon and evening will be made with invited parties aboard. The first of these excursions in Buffalo will be tendered to managers of transportation companies and representatives of newspapers, about fifty of whom will be invited from eastern cities. A trip is then to be made to Cleveland, Detroit, Milwaukee and Chicago, in each of which places excursions similar to those occurring in Buffalo will be given, but probably during only one or two days, as against three days in Buffalo. From Chicago, the boat, with the small party invited to make the entire round trip, will steam direct to Duluth, and the guests will then be given a trip by rail to St. Paul. Then with only the crew and representatives of the owners and builders aboard the boat will be taken for several trials on the deep open waters of Lake Superior. The return to Buffalo will be made without stopping at any point, the boat arriving at the Lake Erie terminal in time to start on her first regular trip June 5.

It can be definitely stated that no formal invitation has been extended to President Cleveland and his cabinet to make a trip on the Northwest, and the president is not expected to do so. Secretary Lamont and Secretary Herbert together with Mrs. Cleveland and some of the ladies of the cabinet may be passengers on the boat at some time during the summer, but even this is simply a probability. Neither has any general invitation been extended by vessel owners to members of congress to visit the lakes during the coming summer. Capt. Alex. McDougall, who was said to have made a request of this kind to members of congress while in Washington looking after river and harbor legislation, was in Cleveland a short time ago, and explained that he simply announced that if some of the members of congress were desirous of making a trip up the lakes accommodations could probably be provided for them, but, as he said, it would be absurd in him to extend an invitation to the entire membership of either the house or the senate without first consulting all lake vessel owners and making the preparations necessary for such an undertaking.

Tips From the Man on the Dock.

When I sometime since made a few remarks anent whalebacks, I little thought I was stirring up such a hornet's nest. It looks now as though this would be a good time to make the excuse, "didn't know it was loaded." However, it looks to me as though the discussion had been productive of a good deal of unnecessary bitterness of feeling, and "Topsail" has evidently more than his share of it. I had intended to let the matter drop, so far as I am concerned, since I am not personally interested, but I will take time to address myself shortly to "Topsail's" allusion to my remark to the effect that McDougall had not gone out of his way to attack the regular pattern, and his citation of two instances to the contrary. When I spoke of attacks on the whalebacks I had in mind principally the sneers directed at their construction and at their constructor, or more properly originator, and the apparent malice with which every one of their little shortcomings was eagerly seized upon, magnified and held up to ridicule. Some even went so far as to malign McDougall personally. I said, and I say again, that he did not retaliate in kind. As for the comparisons made from time to time, and which vex "Topsail's" soul so sorely, they were only to be expected, inasmuch as certain claims were made for whalebacks and the only way of substantiating or refuting them was by comparison. Supposing certain claims were made that could not be made good, the practice is older than whalebacks.

Referring to the comparison between the Mackinaw and Wetmore, why does not "Topsail" tell the sequel also? He should not garble. It is admitted as a fact by all who are not partisans that the whaleback is, other considerations aside, capable of a better sea performance than the ordinary type, by which I mean that the power per ton mile is lower. If "Topsail" wants proof, let him make a few trips along the docks and ask questions of those most likely to know. Let him look up the log books of any of the whaleback steamers and note the time they make, or, if he thinks that the source is unreliable, let him ask the masters or engineers of the numerous outside steamers how they like whaleback tows. An unanswerable argument in their favor is that in conservative England, where the poor despised whaleback was almost swamped with ridicule, one yard is now full of them, and all on contract too. The fact that they are called "turret decked" makes no particular difference. In all essentials they are the same. A recent issue of a London technical journal contains two or three views of one of these "turret decked" whalebacks. One of them, an interior view, would almost lead the spectator to believe he was in the belly of a "whale." The fact that they are more favorably received there among the ship owning fraternity, than "Topsail" believes them to be on the lakes, shows either that our English friends are more gullible than lake owners, or that the whale is a better craft than "Topsail" would have us believe. The well known English character of conservatism contradicts the first theory, and in connection with the second I note that the purchasers are already, as they say over there, "ship owners in a large way."

Now I notice that some people have been very anxious that McDougall should not have all or any of the credit for developing the whaleback idea. If he had not secured the benefit of good professional advice the whale would never have gotten beyond babyhood. Its a poor rule that won't work both ways. "Topsail" makes the point that certain of the whales failed to carry within long range of their contract capacity. Will these same professionals now come forward and admit their responsibility? You bet they won't. See them scramble to get in out of the wet. Perhaps "Fairplay" could tell something about this. Of course McDougall wasn't to blame because "Fairplay," "The Man off the Dock" and "Topsail" have all agreed that he wasn't capable of doing that kind of thing himself and had to have assistance. I am sorry to see further that "Topsail" has to get in a fling at a well known Cleveland man who had the audacity to say a word in favor of the whaleback.

Just think of it! A Cleveland man to dare to say that a boat could be put together anywhere outside of Cleveland and be worth a cuss. If we were not so badly "stuck on ourselves" here, perhaps we would be content to let other people alone. I am very certain that the whaleback is a good deal better looking craft than any of the numerous parodies which it gave rise to, whether called turret-deckers, straight-backs, monitors or what not. It begins to look as though the name "hyphen back" might be used as a generic term for all classes of vessels produced now. They all seem to have something the matter with their backs. Perhaps weak backs would fit some of them very closely.

Illustrated Patent Record.

SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM
LATEST PATENT OFFICE REPORTS.

517,630. APPARATUS FOR RAISING SUNKEN VESSELS. John Taylor and Cash Taylor, Detroit, Mich. Filed April 8, 1893. Serial No. 469,548. (No model.)

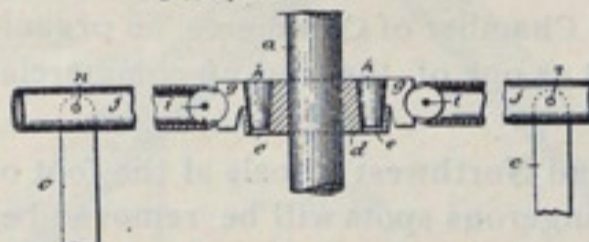
Claim.—First, in a wrecking device, the combination of submergible pontoons, means for handling the same under water, and means for forc-

ing air into said pontoons, and braces having bearing ends P Q, connecting links R R', and an adjusting bolt. Second, in a wrecking device, means of securing submergible pontoons in place, comprising a cable secured to its under side and passed under the wreck, and an adjustable strut, one end of which is secured to the wreck, the other end of which bears against the ponton, substantially as described.

517,726. EXCAVATING OR DREDGING MACHINE. Julius E. A. Braun, Dautschen, near Torgau, Germany. Filed June 11, 1892. Serial No. 436,356. (No model.) Patented in Germany March 27, 1892, No. 66,619; in England April 22, 1892, No. 7,652, and in Austria-Hungary Sept. 29, 1892, No. 18,593, and No. 42 056.

Claim.—In an excavating apparatus, the combination with a suitable supporting frame, of a driving shaft rotatably mounted therein, an inclined elevator frame loosely mounted at one end upon the driving shaft and adapted to be raised and lowered thereupon as described, the upper side of said elevator frame being open to permit the excavated material to be discharged therethrough, a rotatable shaft carried by the elevator frame at its opposite end, an endless bucket chain arranged within the said elevator frame and mounted upon the said rotatable shaft and the driving shaft and adapted to receive the excavated material, a cylinder mounted

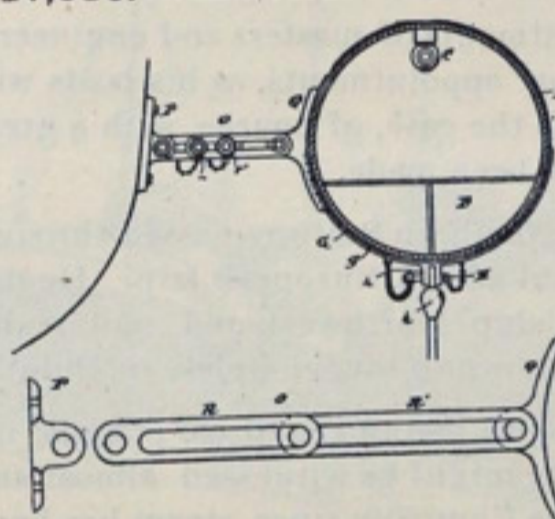
517,462. SHIP'S BERTH



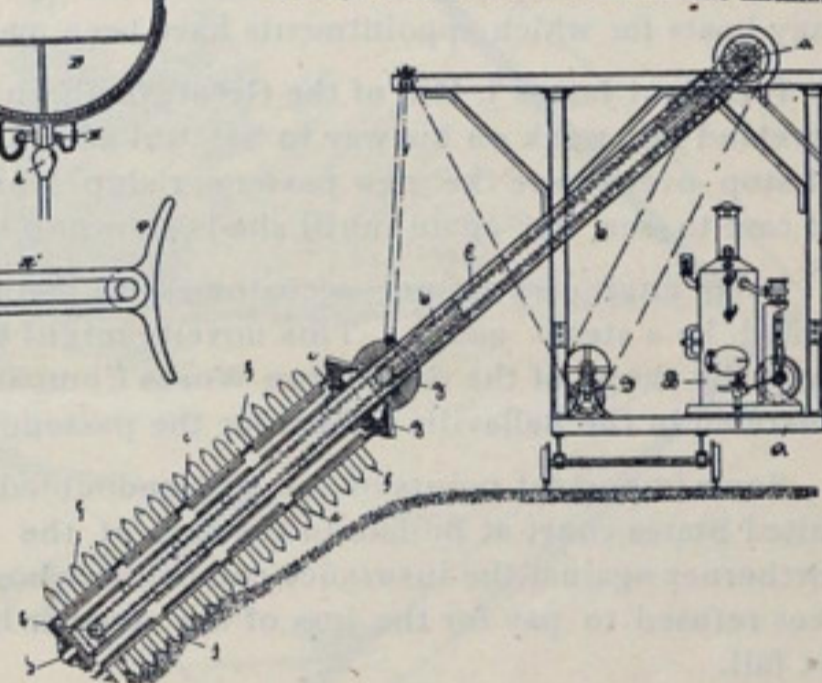
517,536. LIFE-BOAT



517,630. APPARATUS FOR RAISING SUNKEN VESSELS



517,726. EXCAVATING OR DREDGING MACHINE



over and rotatably supported by the elevator frame, said cylinder being provided with a series of circumferentially arranged cutting blades and with a series of openings, said blades being curved and adapted when rotated to raise the excavated material and discharge the same through the openings of the cylinder onto the bucket chain.

517,462. SHIP'S BERTH. Edward Lawson, Birmingham, England. Filed Feb. 9, 1893. Serial No. 461,558. (No model.)

Claim.—In a berth supported by pillars, the combination with the supporting pillars, of collars fixed thereon, having vertical conical sockets, said sockets having at their lower outer portions closed front walls, and having horizontal laterally cut away portions *f* in their walls adjacent to the corresponding berth bars, and said sockets extending downwardly in conical form back of said front walls, the horizontal bars of the head, foot and lee rails, vertical conical plugs carried on the ends of said bars, and neck *g* between said plugs and said bars and of less depth than and fixed to the upper part of said plugs, said plugs having conical lower ends extending downwardly below said necks, and entering and fitting said sockets, and passing behind the closed front walls thereof, and said necks of less width than and entering said cut away portions, whereby when said plugs are fitted home in said sockets a tight joint is obtained at the lower end of the plugs and thereby all chatter between said plugs and said sockets is obviated, and when said necks are in said cut away portions said bars can be displaced horizontally while said plugs are in said sockets.

517,536. LIFE BOAT. Carl Baswitz, Berlin, Germany. Filed June 17, 1893. Serial No. 478,018. (No model.) Patented in Germany Sept. 24, 1892, No. 68,641, and in England, Nov. 24, 1892, No. 21,469.

Claim.—A boat, having its sides composed of bolsters *c' c' c'* meeting at stem and stern, said bolsters consisting of envelopes of a watertight fabric stuffed with a yielding buoyant material of low specific gravity, the bottom of the boat, also consisting of a watertight fabric stayed by a rigid stretcher *f* reaching from stem to stern, said stretcher supporting cross-stretchers *e* carrying bolsters *e' e' e'* the latter being adapted to be used as seats, the upper bolster or seat bolster proper being held by straps *t*, secured to cross-straps *b p*, the latter connecting the sides of the boat.

Around the Lakes.

Capt. Eber Ward will act as agent at Detroit for the new Duluth and Ogdensburg Transportation Company.

Advices from the Sault are to the effect that boats can safely load to 14 feet for the first trip through the canal.

Mr. U. Grant Grummund, manager of the Grummund tugs, announces that he will start a marine reporting bureau at Detroit shortly.

A letter from La Pointe, Wis., announces the death of Capt. John D. Angus, who sailed vessels on Lake Superior more than sixty years ago.

Capt. G. A. Miner will command the steamer W. H. Gilbert and Capt. E. Smades the Emily P. Weed. These boats are managed by A. B. Wolvin of Duluth.

The Manitou, a sailing vessel of 333.60 gross tons, has been registered in the customs office at Port Huron. The official number assigned to her by the commissioner of navigation is 92,568.

Dr. Stephen D. Brooks, for the past four years surgeon at the United States marine hospital, Cleveland, has been transferred to Chicago. His successor is Dr. E. Prochagka, who comes from the New York hospital.

Mr. Luther Allen, secretary of the Globe Iron Works Company, has been elected president of the Cleveland Chamber of Commerce, an organization that is fast pushing to the front as one of the leading commercial bodies of the country.

With dredges at work on Corsica and Northwest shoals at the foot of Lake Huron it is probable that these dangerous spots will be removed before the present season of navigation is very far advanced. This dredging is included in the 20-foot channel work.

In answer to a request for his appointments of masters and engineers, Peter Wex of Buffalo says he has made no appointments, as his boats will not be fitted out at present. The same is the case, of course, with a great many boats for which appointments have been made.

President James J. Hill of the Great Northern Railway passed through Cleveland last week on his way to St. Paul after a European trip. He did not stop over to see the new passenger ship Northwest, and said he did not care to see her again until she is shown to him complete in Duluth.

Even engineers are not accustomed to seeing 280 to 300 pounds indicated by a steam gauge. This novelty might be witnessed almost any day at the shops of the Globe Iron Works Company since steam has been generated in the Belleville boilers for the passenger steamer Northwest.

Some important points of law will undoubtedly be brought out in the United States court at Buffalo in the case of the owners of the steamer Northerner against the insurance companies, whose representatives on the lakes refused to pay for the loss of the steamer by fire on Lake Superior last fall.

One clause of the raft towing regulations in the river and harbor bill, which it is expected will soon be passed by congress, makes the use of screeching whistles illegal, under severe penalties, on all vessels except those engaged in raft towing, or municipal fire and police boats. Raft towing vessels must be provided with the whistles and must keep them tooting in foggy weather.

Baker Bros., Detroit wreckers who have been quite successful on old wrecks, will probably make arrangements to recover machinery, boilers, etc., from the wreck of the F. W. Wheeler, near Michigan City, Ind. It is not known as yet whether anything can be recovered from the wreck of the burned steamer W. A. Avery in the Straits.

Two bills for bridges at Duluth and Superior passed the house a few days ago. They are understood to be measures to which the vessel interests do not object. One of them (H. R. 4,765) authorizes the St. Louis River Bridge Company and the Duluth Transfer Railway Company to construct a bridge over the St. Louis river, from a point at or near Grassy point in the village of West Duluth to the most accessible point opposite, in the state of Wisconsin, and the other (H. R. 5,978) authorizes the construction of a steel bridge over the St. Louis river, between the states of Wisconsin and Minnesota, at Rice's point.

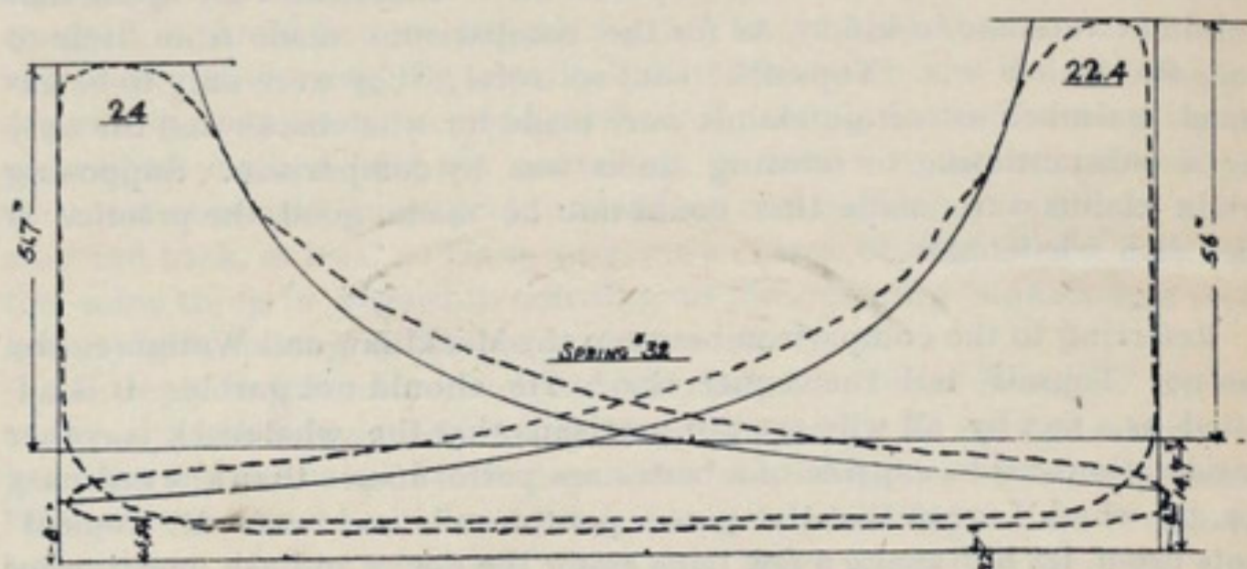
A handsome little volume is that entitled "The Only Naphtha Launch," issued recently by the Gas Engine and Power Company, Morris Heights, New York City. It is a catalogue but a very neat sample of art in printing. The description of the Morris Heights works and its products is most complete. Anyone interested in steam launches, naphtha launches, or in fact anything in the line of pleasure boats, will be greatly interested in the book, which will be forwarded to any address for 10 cents in stamps.

Sternbergh & Son of Reading, Pa., manufacturers of boilers, ship and bridge rivets, bolts, nuts, washers, etc., have just issued a revised catalogue of their products. This firm has of late secured a large business among lake builders. The new catalogue will undoubtedly be furnished upon application.

Notes and Queries on Engineering Subjects.

CONDUCTED BY GEO. C. SHEPARD.

We present this week diagrams from another Corliss marine engine, viz., the S. S. City of Atlanta on the Atlantic coast. The engine was 48" x 60" stroke and at the time these cards were taken was making 65.6 revolutions per minute with a boiler pressure of 56.5 pounds and a vacuum of 24.5 inches. Under these conditions the I.H.P. was 724.8, and the vessel, carrying 1,800 tons cargo, would make 13 knots or 15 miles per hour burning 19 tons pea coal per twenty-four hours in fair weather. To compare this performance with that of our lake vessels, reduce the distance over which the cargo is carried to ton-miles and the coal consumption to ounces and we get 1.07 ounces coal per ton-mile, while the coal per I. H.P. equals 2.51 pounds. The indicated water consumption computed from the actual diagram equals 16.51 pounds per horse power per hour. A representative steamer on the lakes makes by actual test a ton-mile on 1.5 oz. coal and an



indicated horse power costs 1.96 pounds of coal, while the indicated water consumption equals 13.8 pounds per hour. This low indicated water consumption shows a higher efficiency in the engine, the low coal per I. H. P. shows a higher efficiency in the combination of engine and boiler, while the higher cost per ton-mile may be charged to the screw and the elements of the vessel design.

This cylinder is not steam jacketed but still the expansion line of the diagram rises above the theoretical expansion curve and the departure therefrom is so abrupt that we are inclined to think it may be due to leaks in the steam valves. These, however, were comparatively new and the diagrams show that this leak, if such it was, took place at about the same point of the stroke at both ends, which, considering that the valve was at rest, having been closed by the dash pot, is a queer feature. The valves closed at 8 inches from the end of the stroke and the steam was expanded 7.5 times.

We are indebted to Mr. R. L. Peck for the cards and data.

Editors MARINE REVIEW.—I was very much interested in the cards published in your issue of March 29, especially since they were from steam jacketed cylinders. To me the expansion curves show a remarkable departure from the theoretical curves which is not easily accounted for if the steam jackets prevent initial condensation. If, however, there was a good deal of initial condensation the heat from the jackets may have re-evaporated the most of the water and the increase in terminal pressure may have resulted from this, or, it may have been due in part to the evaporation of the water that entered the cylinder as water and in part to leakage of steam valves. To whatever it is due, it represents a loss that may be seen by supposing the theoretical expansion curve to be drawn from the point of release in the L. P. cylinder; then the space between this curve and the expansion lines represents work that might under better conditions have been done by the steam present in the cylinder on the opening of the exhaust. Measuring it would add to the mean effective pressure and hence to the work done by the steam exhausted. It is not at all probable that such an amount of water entered with the steam, so that the rise of pressure must be attributed to the initial condensation and re-evaporation later in the stroke.

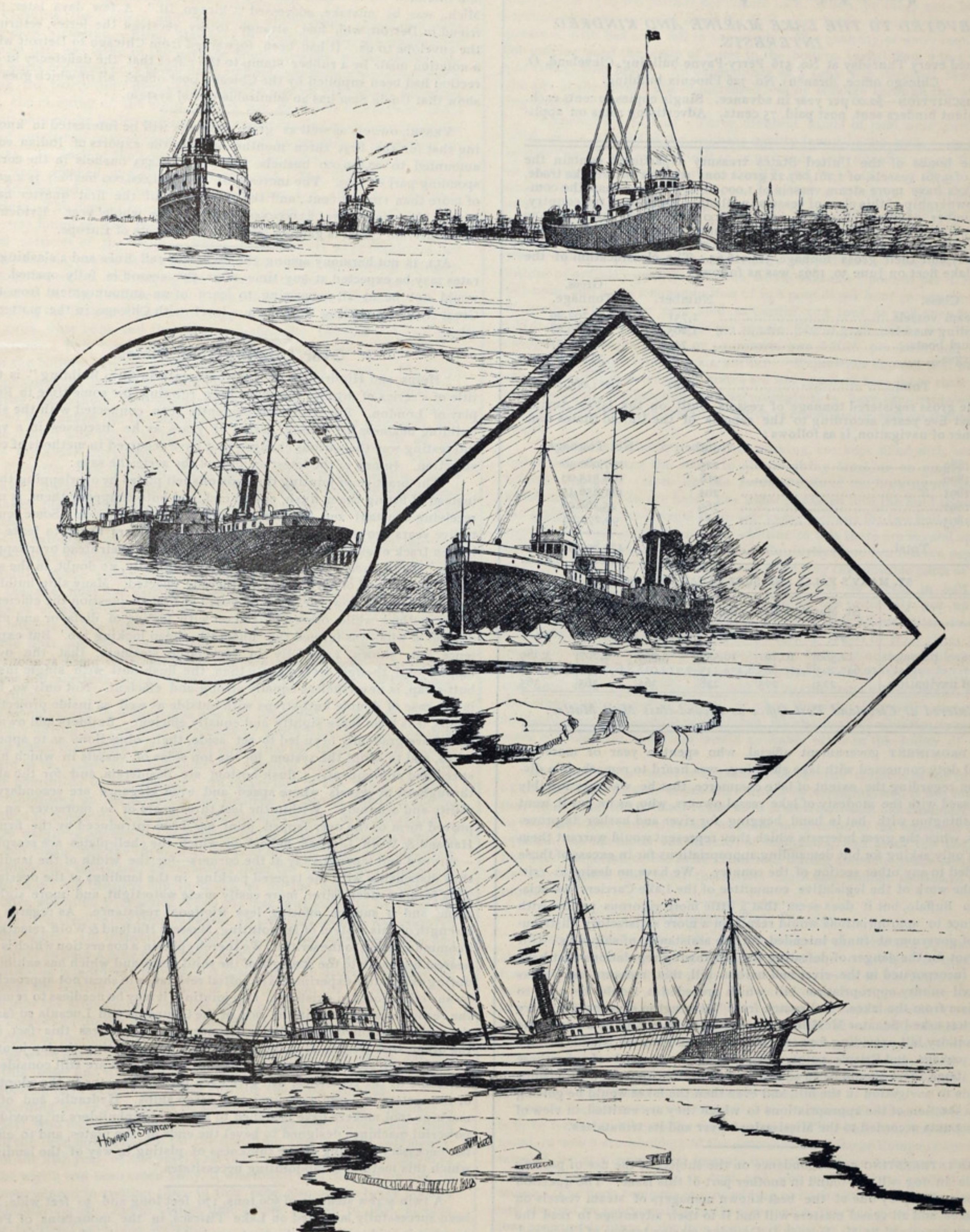
New York, April 6, '94.

H.

Some of the coal companies that are engaged in the business of fueling steamers as well as shipping soft coal at Ohio ports have agreed to charge \$2.10 a ton for fuel, and continue the practice of requiring vessels furnished with cargoes to buy fuel from them. As against the price of \$1.90, made some time ago on a large quantity of fuel to be taken from one Cleveland company by several vessel owners, this agreement will cause some annoyance in the fuel business during the coming season. Not all of the fuel dealers are parties to the agreement, however, and the \$1.90 price will probably be met by some companies.

The through sleeping car to California is now running regularly. Talk to agents of the Nickel Plate road about it. Apl 30

The people along the Nickel Plate road have the advantage of through sleeping car to California points. Apl 30



A Few Scenes Characteristic of the Opening of Navigation.

THE START FROM CHICAGO.

WAITING FOR ORDERS TO GO.

FERDINAND SCHLESINGER IN THE STRAITS.

SINKING OF THE STEAMER MINNEAPOLIS.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O.
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Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,761 vessels, of 1,261,067.22 gross tons register in the lake trade. The lakes have more steam vessels of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of steam vessels of 1,000 to 2,500 tons on the lakes on June 30, 1893, was 318 and their aggregate gross tonnage 525,778.57; in all other parts of the country the number of this class of vessels was, on the same date, 211 and their gross tonnage 314,016.65. The classification of the entire lake fleet on June 30, 1893, was as follows:

| Class. | Number. | Gross Tonnage. |
|----------------------|---------|----------------|
| Steam vessels | 1,731 | 828,702.29 |
| Sailing vessels..... | 1,205 | 317,789.37 |
| Canal boats..... | 743 | 76,843.57 |
| Barges..... | 82 | 37,731.99 |
| Total..... | 3,761 | 1,261,067.22 |

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

| | Number. | Net Tonnage. |
|------------|---------|--------------|
| 1889..... | 225 | 107,080.30 |
| 1890..... | 218 | 108,515.00 |
| 1891..... | 204 | 111,856.45 |
| 1892..... | 169 | 45,168.98 |
| 1893..... | 175 | 99,271.24 |
| Total..... | 991 | 471,891.97 |

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

| | St. Mary's Falls Canal. | | | Suez Canal. | | |
|----------------------|-------------------------|-----------|-----------|-------------|-----------|-----------|
| | 1892. | 1891. | 1890. | 1892. | 1891. | 1890. |
| No. vessel passages | 12,580 | 10,191 | 10,557 | 3,559 | 4,207 | 3,389 |
| Ton'ge, net regist'd | 10,647,203 | 8,400,685 | 8,454,435 | 7,712,028 | 8,698,777 | 6,890,014 |
| Days of navigation.. | 223 | 225 | 228 | 365 | 365 | 365 |

Entered at Cleveland Post Office as Second-class Mail Matter.

A PROMINENT government official, who spent a year or more on special duty connected with lake shipping, was heard to remark, in a discussion regarding the extent of lake commerce, that he was very forcibly impressed with the modesty of lake vessel owners, who, as he put it, went to Washington with hat in hand begging for river and harbor improvements, when the great interests which they represent would warrant them in not only asking for, but demanding, appropriations far in excess of those accorded to any other section of the country. We have no desire to criticise the work of the legislative committee of the Lake Carriers' Association in Buffalo, but it does seem that a little more vigorous policy with reference to appropriations would result in a more satisfactory distribution of government funds intended for the assistance of shipping. If it were not for the danger of defeating the raft towing regulations that have been incorporated in the river and harbor bill, that measure, as well as the civil sundry appropriation bill which preceded it, would be open to criticism from the lakes. A dispatch from Washington says that Secretary Keep has asked Senator McMillan to cause amendments to be made to the civil sundry bill providing for new lights at North Manitou island, Death's Door passage and Crisp's point, Lake Superior. Instead of only these three items, there should be an addition of a dozen or more new provisions for aids to navigation in the bill, and even then the lakes would be getting only a fraction of the appropriations to which they are entitled, in view of the amounts accorded to the Mississippi river and its tributaries.

AN INTERESTING correspondence on the subject of the use of passing signals in fog will be found in another part of this issue. The question was brought up by one of the best known managers of steam vessels on the lakes, and all vessel masters will find it to their advantage to read the opinion expressed by Mr. Harvey D. Goulder, marine lawyer of Cleveland. Since the last meeting of the board of supervising inspectors of steam vessels, special importance is attached to the law providing that passing signals are never to be used except when steamers are actually in sight of each other. In thick weather, when vessels can not see each other, fog signals only may lawfully be given, and pilots should, upon hearing the fog signal of another vessel, ahead or on either bow, run slow with frequent stoppages, until the fog signals of the opposing vessel are heard abaft the beam.

A SHORT time ago a letter sent out from the office of the REVIEW and intended for a friend residing on Joseph Campau avenue, Detroit, Mich., was, by mistake, addressed "Chicago, Ill." A few days later, the friend in Detroit, who had, strange to say, received the letter, returned the envelope to us. It had been forwarded from Chicago to Detroit with a notation made by a rubber stamp to the effect that the deficiency in direction had been supplied by the Chicago post office; all of which goes to show that Uncle Sam has an admirable postal system.

VESSEL owners as well as grain shippers will be interested in knowing that for the first three months of 1894 the exports of Indian corn amounted to 20,839,000 bushels, against 9,854,433 bushels in the corresponding part of 1893. The increase of about 11,000,000 bushels is a gain of more than 110 per cent., and the shipments of the first quarter have been at the rate of over 83,000,000 bushels in the whole year. Evidently this American cereal is gaining favor in the markets of Europe.

ALL is not harmony among the lake and rail lines and a slashing of rates may be expected at any time after the season is fully opened. It would not be at all surprising to learn of an announcement from the Great Northern putting Duluth on a level with Chicago in the matter of rates.

Over Lapping Shell Plates.

"Helps and Hindrances to Improvements in Ship Building" is the title of a series of articles that have been running for some time in Fair-play of London. The writer has evidently been connected with the ship building business for a long period of years, as he discusses in a very interesting way the various changes that have occurred in methods of construction. In one of the latest articles of the series he says:

"The practice of jointing the ends of shell plates by overlapping them instead of fitting them flush, end to end, and butt-strapping them, is now receiving constant and notable sanction in daily practice. Some ten or twelve years ago certain north-east coast ship builders began to leave the beaten track of smooth flush-butts, and to adopt in their stead over-lapped joints. The *raison d'être* of this step lay originally, no doubt, in the saving of weight and of riveting work thereby effected. Many ship builders and ship owners, however, were disposed at first to question the efficiency of the method, while others looked on with feeling of disfavor and mild disgust at what was termed the 'unsightly, cheap looking job.' But experience has shown, especially in very large steamers, that the over-lapped joint, though less sightly than the flush-butt with single inside butt-strap, is nevertheless equally strong and efficient. Not only so, but, in the case of double butt-straps with outside as well as inside projecting straps, it is even more sightly and equally efficient. Builders and owners alike have gradually been led to set aside their objections as to appearances, and to adopt the system for the top sides of vessels in which high speed and consequently a flush-bottom are desiderata, and for the shell throughout in vessels where speed and even elegance are secondary to utility and economy. Within the last three years or so, moreover, an improved form of the over-lapped joint has been introduced by the firm of Harland & Wolff, Limited, Belfast, by which the shell-plates are scarphed—thinned and tapered away at the corners—for the width of the landing, thus dispensing with the tapered packing in the landings at the overlaps. This forms a much fairer, more easily made watertight, and more sightly seam, and a surface offering less frictional resistance. As regards the strength of this system of lap-jointing, Messrs Harland & Wolff remark, in a communication to the writer: 'We thereby obtain a connection which is the nearest approach to the strength of the solid plate, and which has exhibited during exhaustive experiments an initial resistance to shear not approached by any other joint in existence.' Lap-jointing, it may be needless to remind the reader, was adopted in the case of the Campania and Lucania so far as the major portion of their shell was concerned. Doubtless this fact, and the other, that Messrs. Harland & Wolff are now adopting the lap-joint in all their large steamers where double butt-strap joints are still considered advisable by the registries, will give even greater impetus to the adoption of the system in large passenger and cargo ships. Hydraulic and other machine tool makers have hastened to aid the shipbuilders in providing powerful machines designed to bevel the ends of the plates, and to effect the necessary tapering of the thickness of plating in way of the landings which this method of lap-jointing necessitates."

A twin-screw steamer of 500 tons, 170 feet long and 30 feet wide, has been successfully launched on Lake Titicaca, in the mountains of Peru, on what is said to be the highest navigable water in the world. The steamer was built on the Clyde and transported by water, rail and llamas and mules to its present position—13,000 feet above the sea.

It has, so far as records are available, been left to a German-owned and German-built steel clipper, the Philadelphia, to claim the honor of having covered the distance between Sandy Hook, New York, and Sidney Heads in less time than any ship that has ever made the voyage. She did the run in seventy-seven days. Her best run was 338 miles in one day.

Another Chapter on the Belleville Boiler.

(Continued from Vol. IX, No. 14.)

"Cleaning the boilers and inspection of the boiler appliances after thirty days steaming.—From March 18 to April 22, 1889, the steamer for the most part was lying in the ports of South America, as the passage between ports occupied only seven days, and only six boilers were employed. During the thirty-four days of the vessel's stay off the South American coast, the cleaning of the eight boilers was gradually carried out, and a portion only of the boiler appliances were overhauled, as on account of the limited number of engine-room hands, it was impossible to inspect all appliances. In each of the boilers the separator and the four lower rows of tubes were cleaned and all deposit removed. The five upper rows of tubes are cleaned with scrapers only once a year, i. e., after 180 or 200 days steaming. The deposit is usually from 1 to 3 mm. thick. The thicker deposit was found on the two lower rows of tubes, and principally in the central sections of the boilers. When three stokers were employed for nine hours a day, three days were required for cleaning, washing out, putting together again, and testing the boilers with hydraulic pressure, with the view of seeing that the ends of the tubes were satisfactorily set up. In cleaning the boilers it was clearly apparent in all, that the tubes of the lower rows were bent, and that this was especially the case with the central sections. This bending constantly increases with the period of service of the boilers. In one of the boilers the bending of two of the tubes was considerable, and accordingly they were replaced by spare ones. In removing these tubes their washers and rings had to be cut out. After they had been taken out the amount of their curvature was measured, and in one case it was found to be 1 inch, in the other $\frac{3}{8}$ inch. In all the boilers the above curvature of the tubes is found to be in one and the same direction; that is to say, the convex surface of the tube is always downward towards the grates. All the zinc plates were renewed, and this takes place approximately after every twenty-five to thirty days' steaming.

"The automatic water-gauge cock of the separator, during the trip from Bordeaux to Buenos Ayres, allowed the water to rise 5 inches beyond the middle of the water gauge. On taking the apparatus apart it was found that the float was partially filled with water, in consequence of the passage of steam into the junction of the float with the upright stem, which latter is screwed into the float. After the water had been removed from the float and the upright stem firmly fixed by means of a new washer placed under the shoulder of the stem, the automatic water gauge cock was put together, and it acted without further failure in the subsequent runs.

"The automatic feed apparatus was not inspected, it having worked accurately during the run from Bordeaux to South America. As a general rule, on board the steamer, it was laid down that the tubes of the condenser were to be looked to as frequently as possible, with the view to averting the possibility of any leakage. An inspection of the tubes is, moreover, compulsory on the arrival of the steamer in South America, and on her return to Bordeaux, i. e., approximately after thirty days' steaming.

"On weighing anchor at Las Palmas, in the Canary islands, a leak of water and steam into the furnace of the port forward boiler was observed; accordingly this boiler was disconnected from the others, and steam was lowered in it. On the next day, in order to fix the position of the leak, this boiler was filled with water, when the leak was found to be from the fourth section (reckoning from forward), so that this section was removed from the boiler. On inspection it was found that the uppermost tube had on its lower surface a hole $6\frac{1}{4}$ inches long and $\frac{1}{8}$ inch wide, and it was determined to replace this tube with a spare one. In order to remove the tube from the section, both the ring of this tube and the tube itself were cut off near the after uniting box, the short portion of the tube which remained screwed into the plate was then cut off, and so, having flattened the portion of the tube which was cut off, it was screwed out of the box. After the worn out tube had been replaced by a spare one, steam was got up in this boiler and it continued to work successfully with the others. Two working days were required for shifting the worn out tube.

According to the statements of the commander and chief engineer of the vessel, who had served on her since she began her career, this eating away of the tube now occurred for the first time, that is at the commencement of the fifth year of the vessel's service. On a careful examination of the tube which had been eaten away, it was found that this action had already commenced in another place in this tube, also on the lower portion of its interior surface, and in a short time a hole similar to that already discovered would have been formed.

"In spite of feeding of the boilers with distilled water, and of the great care taken of the condensers, the saturation of the water reached 3 degrees, and recourse had to be had to the surface blows a short time to maintain the saturation at 2 to 3 degrees. The bottom blows were used twice every twenty-four hours. At each blow-off the cock was rapidly opened and closed twice, and this was quite sufficient for the removal of the sediment which had accumulated in the lower part of the ejector. Efforts were made to keep the boiler pressure at 120 pounds, which was

effected when Cardiff coal was used. With other kinds of coal the pressure varied from 75 to 100 pounds per square inch. When the tubes were being cleaned by steam and also when the fires were being cleaned, the steam pressure, with bad coal, fell to 52 pounds. The quantity of water required for making good the waste of water in the boilers varied from 2 to 3 tons per twenty-four hours. An expenditure of 4 tons was required towards the end of the voyage due to increased loss by leakage through the stuffing boxes.

"Expenditure of coal.—Three different kinds of coal were used or tried, viz.: 1. Cardiff of the ordinary quality found in the trade. 2. Coal sold as Cardiff, and similar to it in appearance, but actually, as was found on burning it, something between Cardiff and Newcastle. 3. Cheap briquettes (15 francs a ton), which were obtained at Dunkirk. In order to attain the ordinary twenty-four hours' run of 250 miles, the engines must make about sixty-eight revolutions and develop about 1,160 I. H. P., and under these conditions, using seven boilers, the area of grate surface of which was 158 square feet, the mean daily expenditure of coal was: For Cardiff of ordinary quality, 34.4 tons, which makes 2.7 pounds per I. H. P. per hour, and gives a consumption of 19.8 pounds per hour per square foot of grate surface; for coal sold as Cardiff, 37.4 tons, or 2.98 pounds per I. H. P. per hour, and 22 pounds per square foot of grate per hour; for the cheap briquettes, 41.3 tons, or 3.3 pounds per I. H. P. per hour, and 24.4 pounds per square foot of grate surface. Experience showed that Belleville's patent iron corrugated grates are not practical, because of their frequent warping and bending, and accordingly they have been replaced by the ordinary cast iron bars, of which a considerable reserve is kept on board.

"The Belleville boilers, while not working, are kept filled with water, and in order to lower the water to the working level or to empty the boilers, there are valves on the forward ends of the blowing off pipes, which are situated in the hold. The water is passed into the hold through the e pipes. On the Ortegá there are spare sections for two boilers, and spare boiler appliances as well. In addition to this there are several spare boiler tubes with their uniting boxes. Generally there is a reserve supply of 25 per cent. of all boiler fittings, not excluding the movable parts of the Belleville donkeys. Although it is possible to get up steam in half an hour, more time was always allowed and steam was ordinarily got up in two hours. Although M. Belleville proposes to blow off his boilers immediately the fire has been raked out of the furnaces, and to refill them immediately with water, this practice was never followed on board the Ortegá, and usually, in changing the water in the boilers, it was allowed to cool and then passed into the hold. The engineers of the Ortegá find that when steam is got up rapidly, or when the water is rapidly renewed in the boilers, the bending of the tubes, which occurs at all times, is much more considerable, and a leak would probably occur in the joints of the tubes.

On return of the vessel to Bordeaux the interior surfaces of the tubes of the starboard forward boiler were tested by sounding, and it was found that there were fifteen tubes in the walls of which erosion had commenced. In the four lower rows of tubes, however, no erosion of the walls was discovered. As the boiler was selected at haphazard, and as all the boilers had been subjected to the same conditions during this four years' service, we may suppose that in all the boilers there was similar erosion of the tubes.

Conneaut Car Ferries.

Samuel B. Dick of Meadville, Pa., president of the Pittsburg, Shenango and Lake Erie Railroad Company, says in answer to a letter of inquiry from the REVIEW about the proposed car ferry service of his company on Lake Erie: "It is our expectation and intention to build one or two boats in the near future, to be operated as car ferries between Conneaut, O., and Port Dover, Can., but we do not anticipate having them ready before fall. The expectation is to build boats that will cross a greater portion of the year carrying from twenty to twenty-six 30-ton cars to the trip. After we have perfected our organization and accepted the plans we will be glad to furnish you any further information on the subject."

From the last sentence in this letter it would seem that a new company is to be formed to take up the ferry business. The dock company at Conneaut, in which stockholders of the American Steel Barge Company are interested, is also a corporation separate from the railway company. A fair share of Lake Erie business in coal and iron ore went to Conneaut last season. The dock company is now adding to its facilities for handling coal and ore, and an appropriation in the river and harbor bill more liberal than that accorded to other Lake Erie ports will help to improve the harbor. Altogether the promoters of this enterprise at Conneaut seem to be proceeding in a substantial way, and in contemplating the construction of car ferries they very probably have a profitable business in view.

Patronize the through car service via the Nickel Plate road to Chicago, New York and Boston. Apl 30

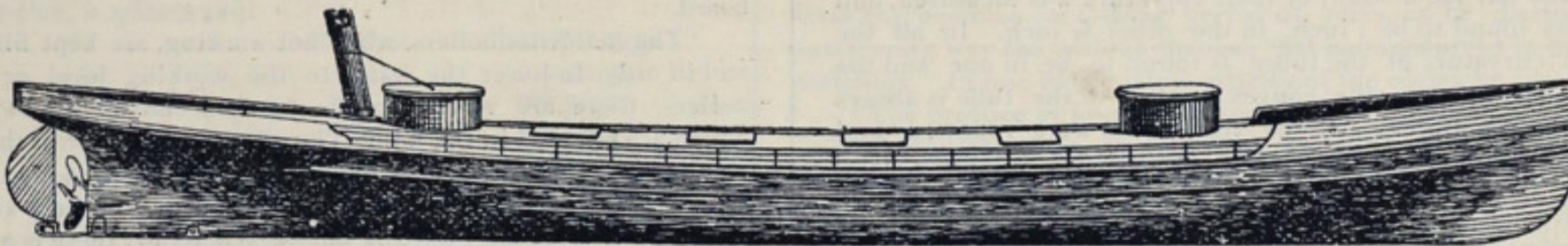
Buffet sleeping cars are used in the through service over the Nickel Plate road between Chicago, New York and Boston. Apl 30

A Boat for Lake and Canal.

David Bell, Buffalo ship builder, has an article in the Sunday Buffalo Express of the 8th inst., in which he proposes a plan to promote the prosperity of the New York canal system and also introduces a type of boat which he thinks is suited to lake and canal service. Mr. Bell has been connected with the canal business of New York state for a great number of years, and alike to most Buffalo people he does not look with favor upon any of the several big schemes for a new outlet to the seaboard, especially those that would take away Buffalo's terminal business in grain. He writes at some length about steam canal boats and the recent experiments with electricity, and then outlines his own project for a ship-canal of limited dimensions.

He recommends that the state lengthen one tier of locks to admit a boat 200 feet long, widen them to allow a boat of 26 feet beam to pass through, and deepen the canal to 10 feet of water, thus enabling a boat to load down to 9 feet draft; then make the walls of the canal vertical, thereby greatly increasing the capacity of the canal, and quickly open and close the lock gates by some mechanical power. A good share of the material now in use at the lengthened lock could be used to advantage in making these improvements. This work, he thinks, could be accomplished in three to four years. He is not competent to estimate the probable cost of this improvement; that must be done by practical engineers skilled in that line of business, but he thinks it might all be done for \$15,000,000.

The boat he proposes to use for this enlarged and improved canal would be 200 feet long, 26 feet beam, and draw 9 feet of water when loaded.



STEAMER FOR LAKE AND CANAL SERVICE.

Built after the pattern of the whaleback, without the pig nose, and having a rounded deck, she should be of steel, with water-tight compartments and cargo hatches and deck houses at either end, after the turret style. Forward would be the pilot house and fore-castle for the crew, the after-house for entrance to the cabin and engine room, with everything water-tight; the vessel in material and structure to be such as to stand the heaviest seas as well as any boat on the lakes. She might have a wooden bottom of oak or elm, which would be well, as she might strike against some obstruction in the bottom of the canal. The design is to send occasionally this boat to Dunkirk, Erie, Toledo, Cleveland, Detroit, Ashtabula or any port in Canada, load a cargo of grain, sail the lakes at twelve miles per hour, through the Erie canal at four miles per hour, and deliver her grain at any port of New England, at Philadelphia, Baltimore or Washington before breaking bulk, thereby saving great expense and loss of cargo in handling. When ready to return, she could always load a cargo of coal.

"Now what are the possibilities," the writer says, "of a boat like this to make money for her owners, afford cheap and rapid transportation for the unlimited grain supply of the west, and successfully beat off all competition by railroad or any other route from the great lakes to the seaboard? A clear idea of the boat may be obtained from the illustration. She is designed to carry 25,000 bushels of wheat, or 750 tons of coal, on 9 feet draft. At the present freight rate on the canals, say 4 cents per bushel for wheat from Buffalo to New York, she would receive \$1,000 for the down trip and say \$400 for the coal load she brings back. Barring accidents, she would go from Buffalo to New York and back in two weeks, and make say fourteen trips a season. The gross earnings would be about \$20,000, which would leave a large margin of profit. By this system, with everything in good working order, these boats could carry grain from Buffalo to New York at a cost of 2 cents a bushel. This kind of vessel could be equipped with all the modern appliances in marine engineering. The boilers might be of the water-tube type of the most improved kind, the engine triple expansion, and both boiler and engine worked in the most economical manner."

Insurance Matters.

Some rumors of a cut in the cargo insurance rates of 18 and 20 cents a ton on coal and ore, for Lake Michigan and Lake Superior respectively, were current during the past few days, but the matter rested with one case, where a local agent had agreed to give up his own commission, but the action was not sanctioned by the general agent, who announced that he would refuse the business under such a condition, and it is certain that as yet there has been no deviation from the tariff. Coal and ore shippers are, of course, refusing to place the large lines of business, that have in past seasons been closed up early on low rates, as they hope for a break in the ranks of the underwriters, but the latter are certainly presenting a

stronger front than they have in the past. Their letters of instruction to local agents seem more positive than ever before. The same conditions prevail as to hull risks notwithstanding the probable shrinkage in business on account of a large number of vessels not going into commission, or running without insurance, and the delay in starting the lake fleet. But April is, of course, a losing month for the underwriters anyhow, and the probability of their holding to the established tariffs can be judged better later on.

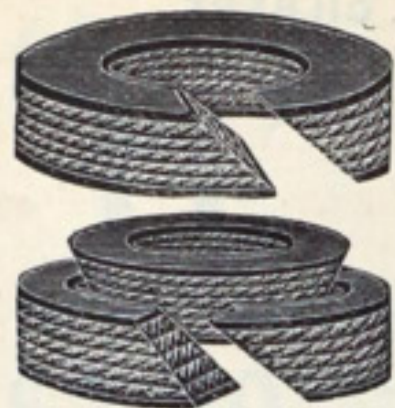
River and Harbor Funds.—Raft Towing.

Again in the river and harbor bill, as in the civil sundry appropriation measure, lake harbors and channels are not given the full share of appropriations to which they are entitled, in comparison with the amounts accorded to other sections of the country, but there are some redeeming features in the bill that entitle it to the full support of representatives in congress from the lake states. Of an aggregate of \$9,431,689.56 carried by the bill, as it has been presented to the house, rivers and harbors on the lakes get \$1,483,940. The table printed below was prepared from a careful study of the bill and shows the appropriations recommended for the lakes. About 40 per cent. (\$3,688,939.56) is for the improvement of harbors, and the remainder, \$5,742,750, is for the improvement of rivers. For examinations, surveys and contingencies \$125,000 is recommended, which amount is included in the total for rivers.

Through the efforts of Secretary Keep of the Lake Carriers' Association, who met with hearty co-operation from Chairman Blanchard of the river and harbor committee, the recommendations of the commission of

army engineers who investigated the subject of raft towing on the lakes, have been embodied in the bill, and are intended for statutory regulations to govern raft towing. The conclusions of the engineers were printed in the REVIEW when the report was made to the war department. If this section of the bill is carried, the vessel interests will have reason to feel grateful to the committee for having disposed of a question that has caused a great deal of annoyance on the lakes. Lake items in the bill are as follows:

| | | | |
|----------------------------|----------|-------------------------------|-------------|
| Buffalo, N. Y.----- | \$70,000 | South Haven, Mich.----- | \$10,000 |
| Charlotte, "----- | 15,000 | White Lake, "----- | 5,000 |
| Dunkirk, "----- | 20,000 | Marquette, "----- | 30,000 |
| Ogdensburg, N. Y.----- | 27,000 | Ludington, "----- | 6,000 |
| Great Sodus, "----- | 8,000 | Petoskey, "----- | 10,000 |
| Little Sodus, "----- | 8,000 | Saugatuck, "----- | 5,500 |
| Rondout, "----- | 5,000 | Menominee, "----- | 10,000 |
| Tonawanda, "----- | 50,000 | Ahnapee, Wis.----- | 5,000 |
| Sackets Harbor, N. Y.----- | 5,000 | Green Bay, "----- | 25,000 |
| Erie, Pa.----- | 10,000 | Kenosha, "----- | 10,000 |
| Ashtabula, Ohio.----- | 75,000 | Kewaunee, "----- | 15,000 |
| Lorain, "----- | 10,000 | Manitowoc, Wis.----- | 15,000 |
| Cleveland, "----- | 40,000 | Milwaukee, "----- | 52,000 |
| Fairport, "----- | 20,000 | Port Washington, Wis.----- | 5,000 |
| Huron, "----- | 10,000 | Racine, Wis.----- | 15,000 |
| Port Clinton, "----- | 6,000 | Superior Bay, Wis.----- | 40,000 |
| Sandusky, "----- | 25,000 | Sheboygan, "----- | 22,440 |
| Toledo, "----- | 60,000 | Ashland, "----- | 25,000 |
| Conneaut, "----- | 40,000 | Two Rivers, "----- | 3,000 |
| Vermillion, "----- | 2,000 | Sturgeon Bay Canal, Wis.--- | 5,000 |
| Michigan City, Ind.----- | 21,000 | Oconto, Wis.----- | 3,000 |
| Calumet, Ill.----- | 15,000 | Duluth, Minn.----- | 50,000 |
| Chicago "----- | 80,000 | Grand Marais, Minn.----- | 3,000 |
| Waukegan, Ill.----- | 12,000 | Agate Bay, "----- | 25,000 |
| Charlevoix, Mich.----- | 8,000 | Saginaw river, Mich.----- | 40,000 |
| Frankfort, "----- | 20,000 | Black river, "----- | 8,000 |
| Grand Haven, Mich.----- | 25,000 | Clinton river, "----- | 5,000 |
| Grand Marais, "----- | 20,000 | Rouge river, "----- | 5,000 |
| Manistee, "----- | 12,000 | Detroit river, "----- | 30,000 |
| Holland, "----- | 5,000 | Alpena, "----- | 4,000 |
| Monroe, "----- | 5,000 | Portage Lake canals, Mich.--- | 125,000 |
| Muskegon, Mich.----- | 30,000 | St. Joseph's river, Mich.--- | 5,000 |
| Ontonagon, "----- | 7,000 | Menominee river, "----- | 6,000 |
| Pontwater, "----- | 5,000 | Sturgeon Bay canal.----- | 20,000 |
| Sand Beach, "----- | 20,000 | | |
| Portage Lake, Mich.----- | 25,000 | | |
| St. Joseph, "----- | 30,000 | | |
| | | Total.----- | \$1,483,940 |



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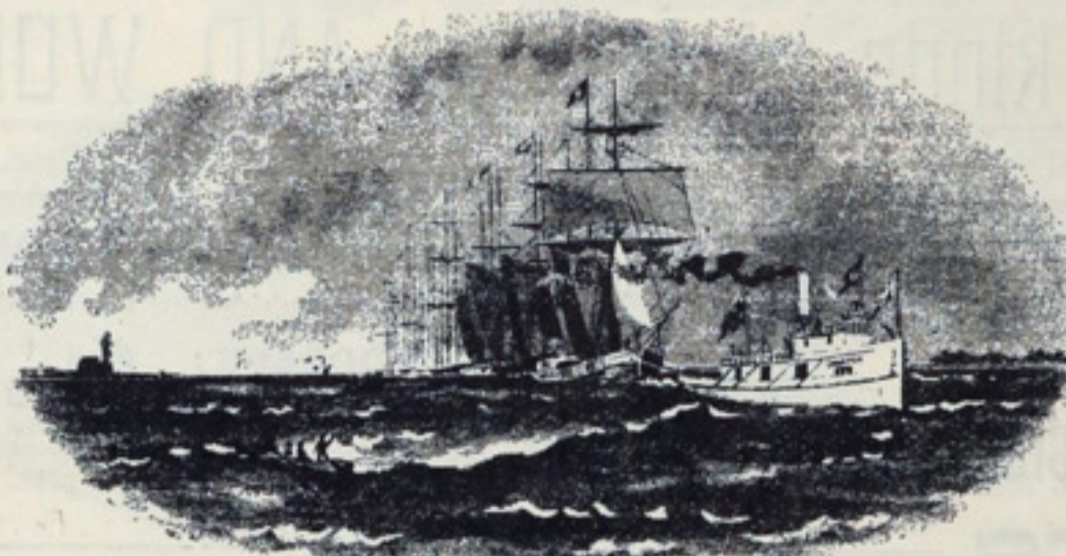
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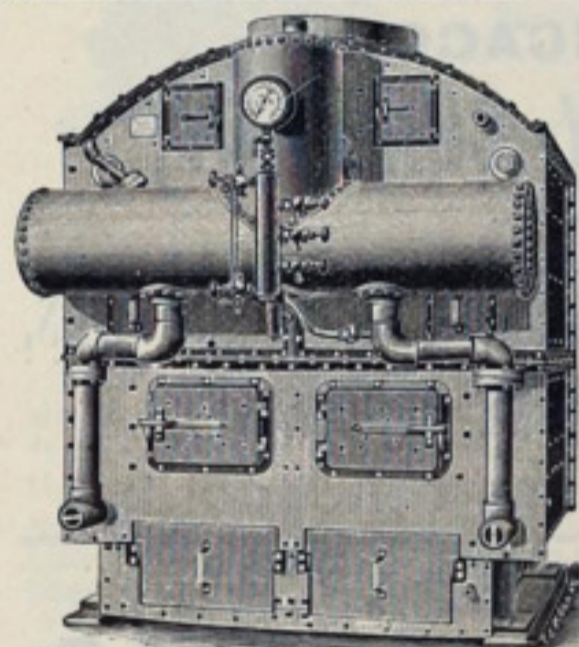


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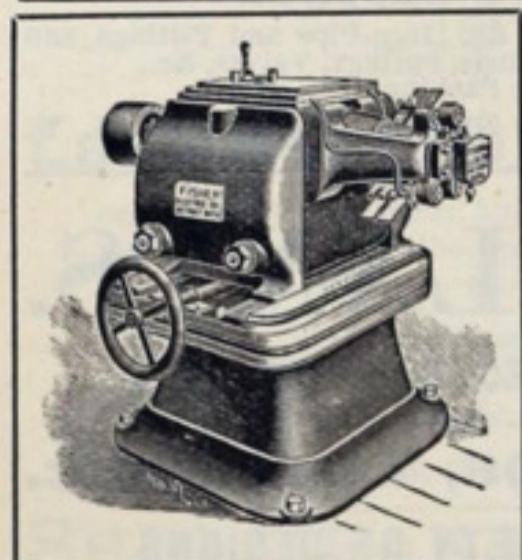


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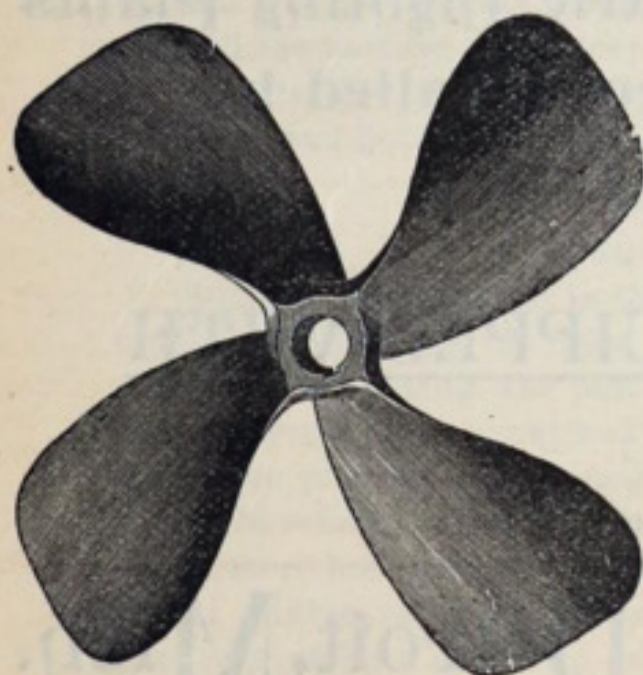
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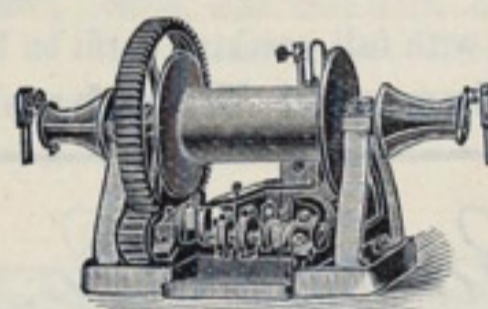
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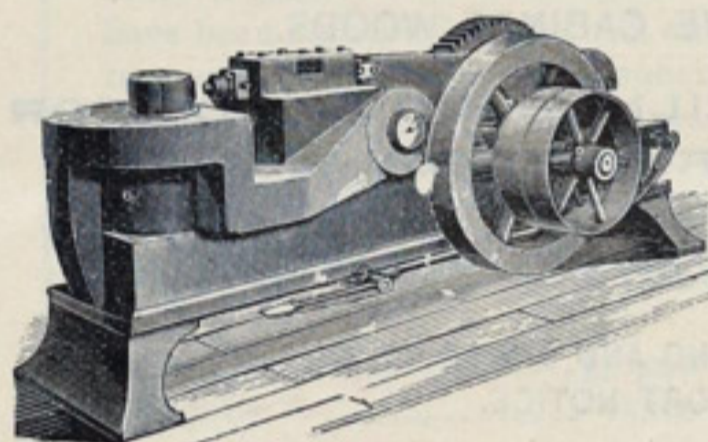
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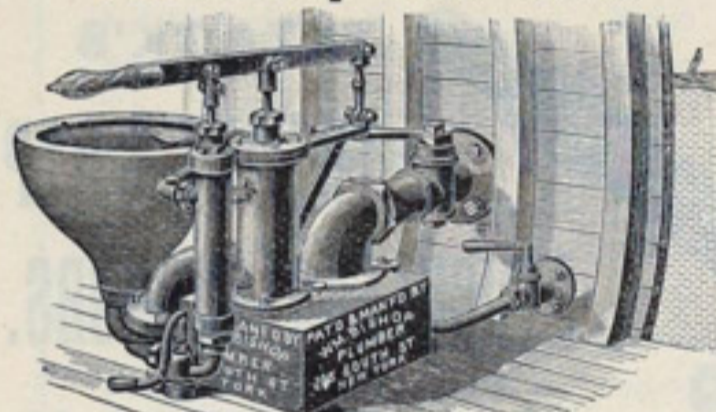
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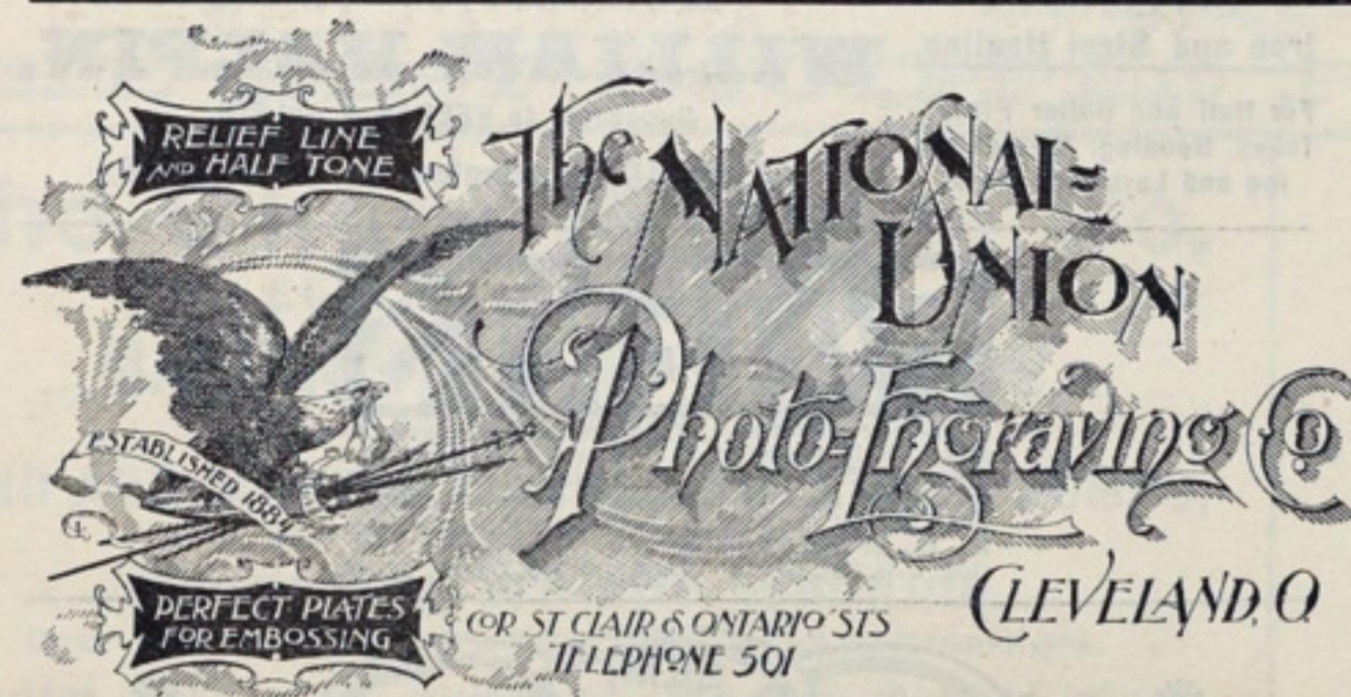


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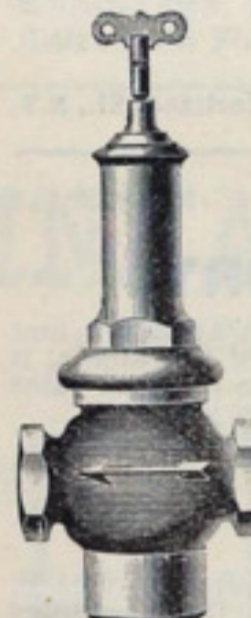
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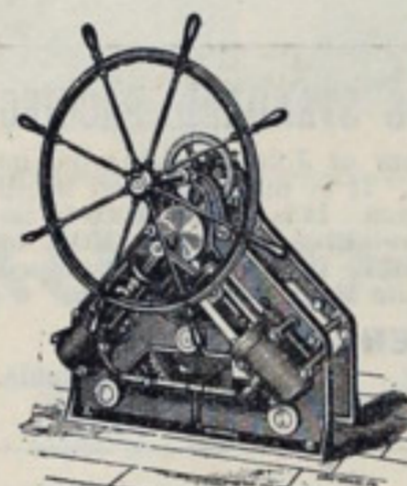
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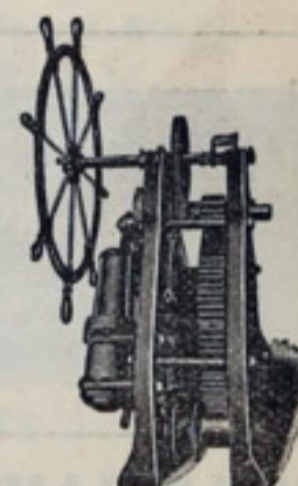
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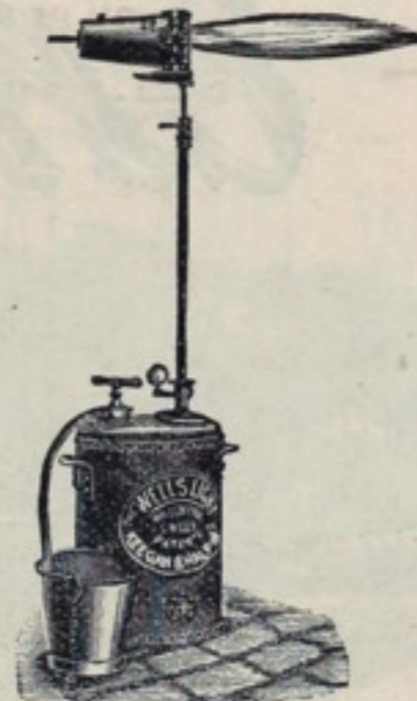
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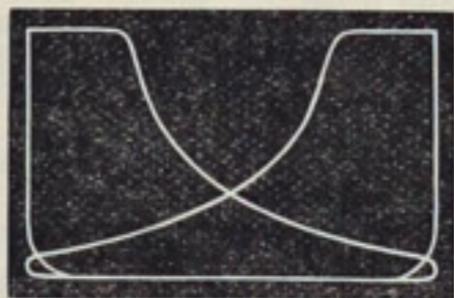
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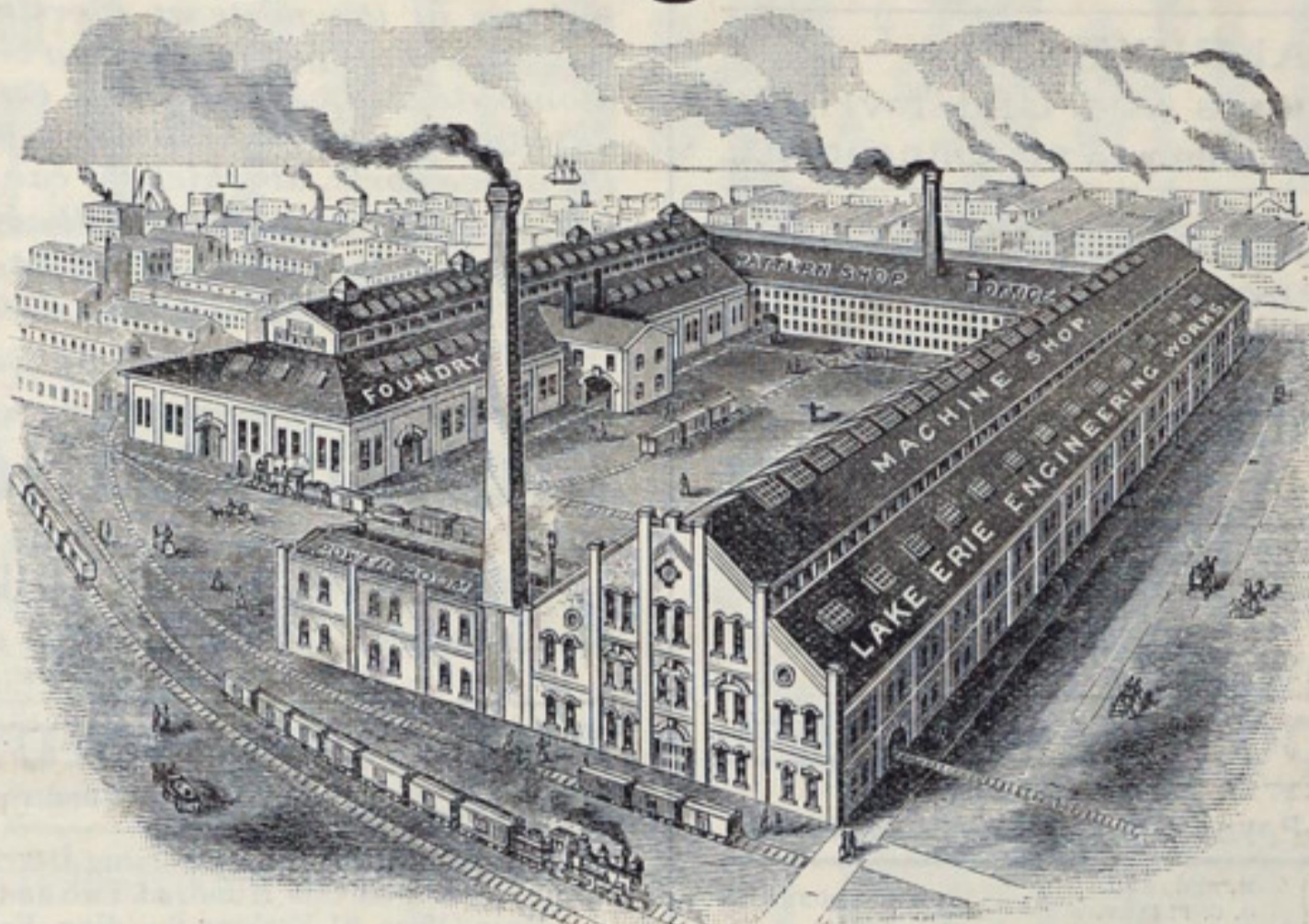


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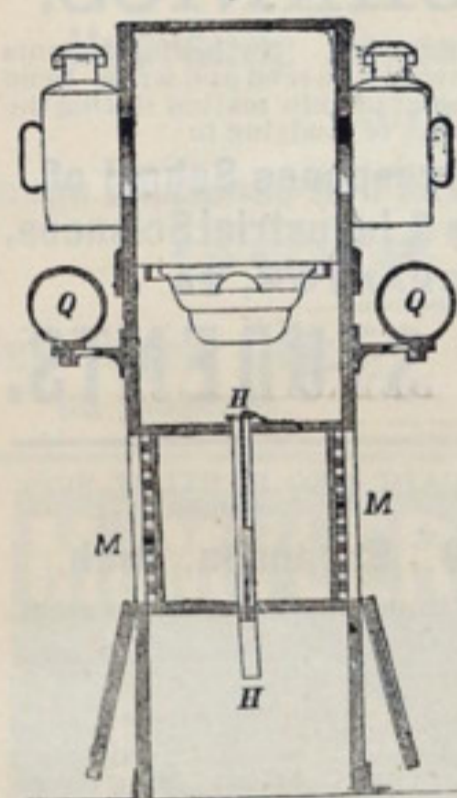
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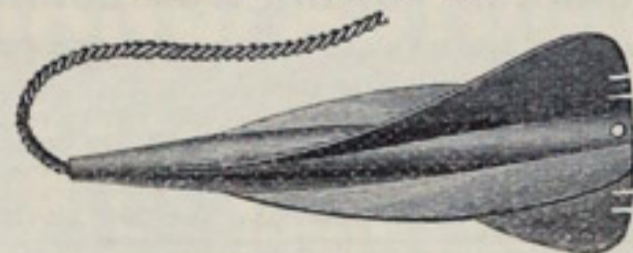
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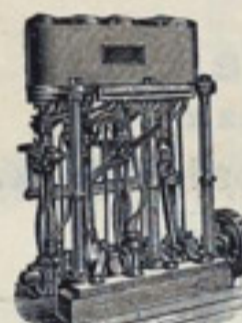
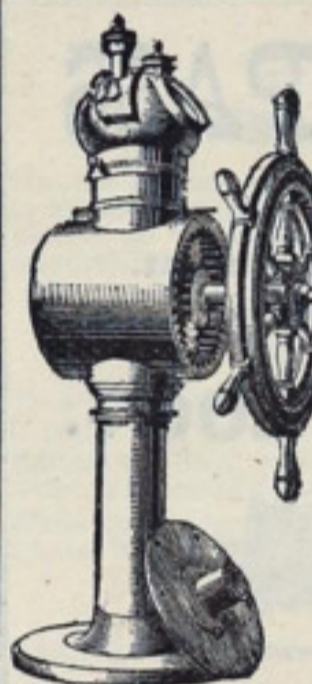
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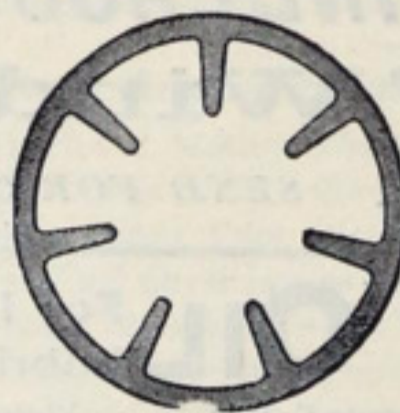
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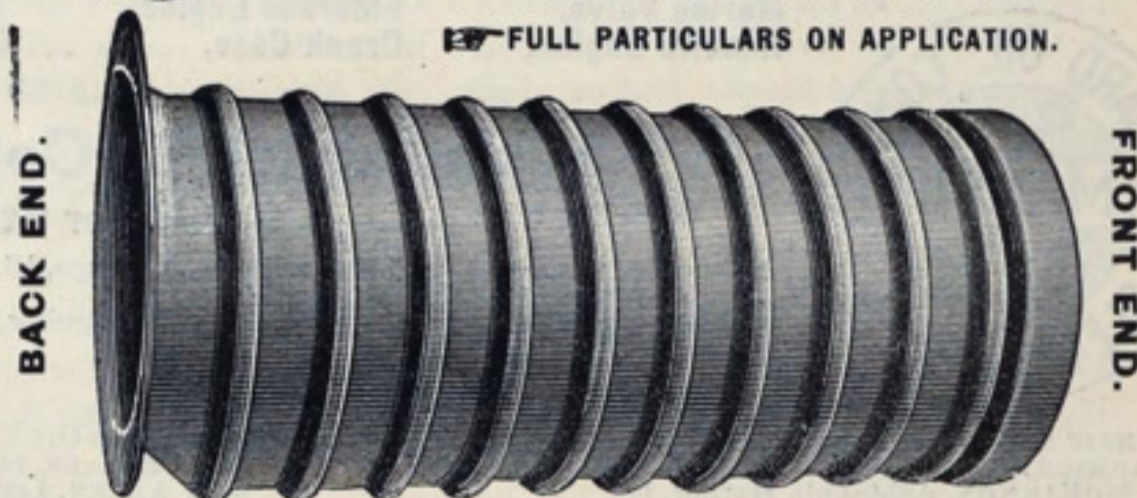
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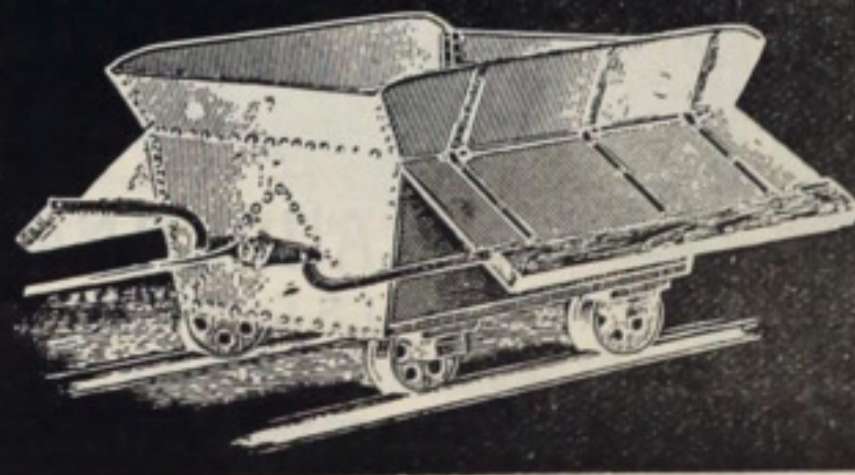
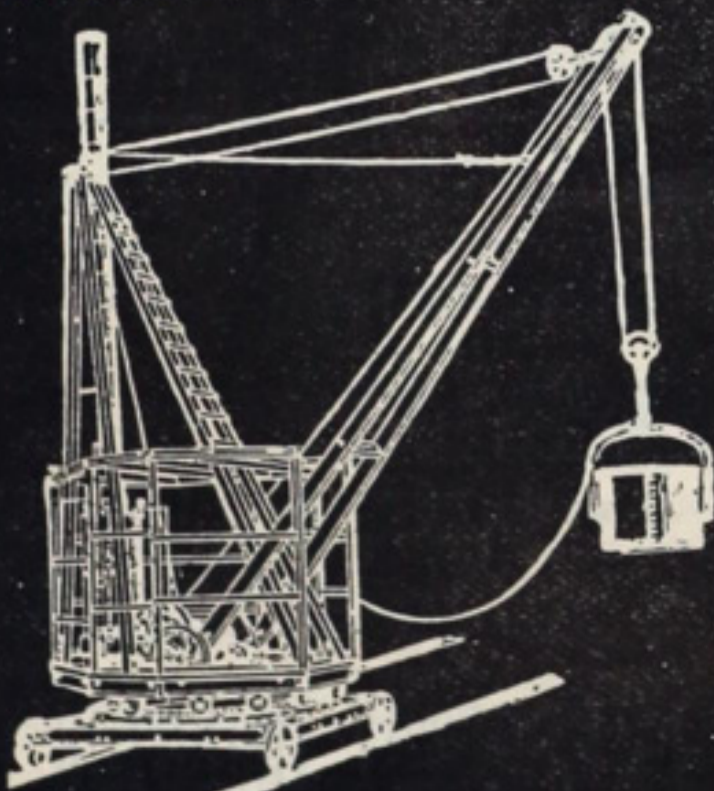
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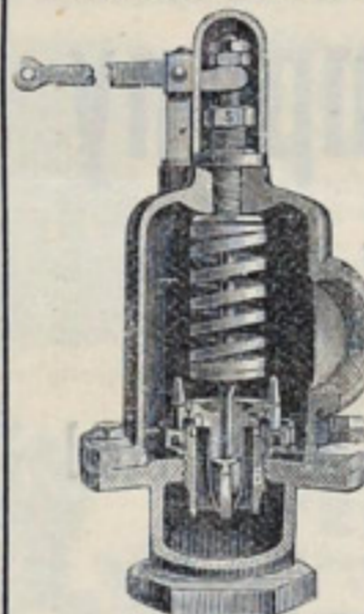
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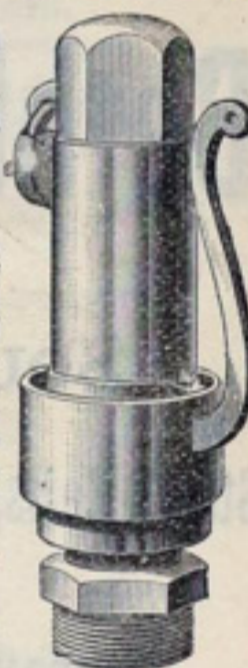
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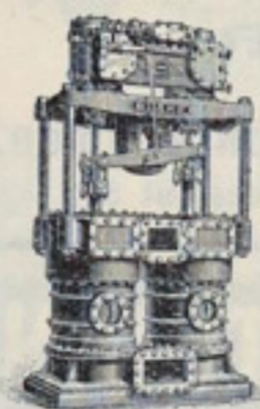
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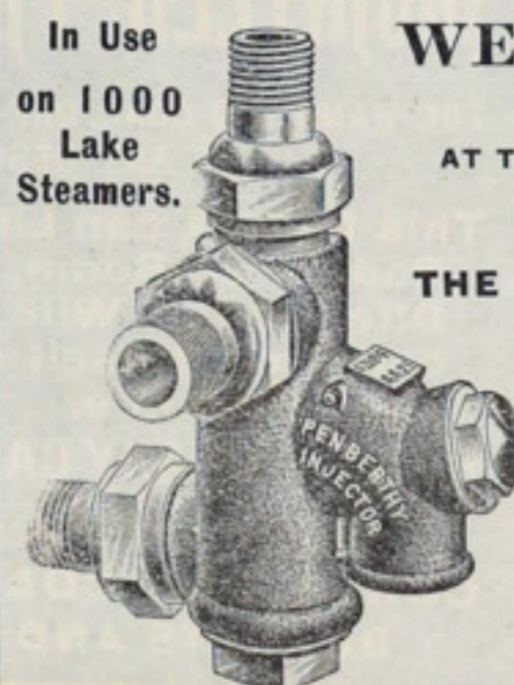
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